USSR

UDC 632.95

LUKANINA, V. S., BEZUGLYY, S. F., MEL'NIKOV, N. N., IVANOVA, S. N., GOROKHOVA,
V. V., KOSTYUKOVA, M. I., and KURBATOVA, T. I.

"Emulsifiable Concentrate of 5,4'-Dichlorosalicylanilide --- An Effective
Molluscicide"

Translation: The use of 5,4'-dichlorosalicylanilide (I) in the form of a
10-percent emulsion concentrate (EC) increases its molluscicidal activity
8-9 fold over tha of an ammonia solution. I is 800-900 times more effective
than $CuCO_4$. At a $1:9.10^6$ dilution I provides 100% destruction of molluscs.
In the applied concentration I is harmless for warm-blooded animals and
grass cover. There is no change in the physicochemical properties and mollusci-
cidal activity of the EC of I when it is stored in an airtight container for
two years. The 10% EC of I is recommended for application in agriculture
in doses of 1-5 kg/ha.

1/1

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USSR

PIL'MENSHTEYN, I. D., and BEZUGLYY, S. F., All Union Scientific Research Institute of Plant Protective Agents, Moscow

"Study of the Rheological Properties of Inverse Pesticide Emulsions"

Abstract: Studying the rheological properties of inverse emulsions. in which the oil phase consisted of the herbicide -- a solution of 2,4 D butyl ester -- and the emulsifier being a mixture of OP-4 and calcium dodecylbenzenesulfonate. it was noted that such emulsions are non-Newtonian liquids. Using an equation for the activation energy of viscous flow in a dispersion medium (the emulsifying concentrate) and in inverse emulsions. it was shown that the flow occurs in the interlayers of the dispersion medium. Dispersed phase particles do not participate in the ordered motion but oscillate about the equilibrium position. Addition of cetyl alcohol to the emulsifying concentrate leads to a sharp increase in the viscosity of the emulsion.

1/1

USSR

UDC 632.982.4

PIL'MENSHTEYN, I. D., BEZUGLYY, S. F., and ROMANOVA, A. I., All-Union Scientific Research Institute for Chemical Means of Plant Protection

"Use of Return Emulsions of Butyl Ether of 2,4-D for Prevention of Herbicide Drift in Aircraft Spraying"

Abstract: Studies were conducted of the use of return emulsions of a butyl ether of 2,4-D to prevent herbicide drift in aircraft spraying for weed control. It was shown that concentrated return emulsions of butyl ether of 2,4-D are non-Newtonian liquids in which the coefficient of viscosity drops with increase in the rate of shift deformations (rate of outflow). The viscosity of concentrated return emulsions rises with increase in concentration of the disperse phase (of water) but to a known limit, i.e., to a concentration inducing the reversal of emulsion phases (the transformation of the return emulsion into a direct one). This limit depends on the amount and chemical nature of the emulsifier introduced into the emulsion concentrate.
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USSR

It was established that in intense mixing of concentrated return emulsions of butyl ether of 2,4-D, their viscosity grows considerably. This is explained by the decrease of the mean diameter of disperse phase particles and, probably by decrease of polydispersity of these particles. A simple mathematical expression was obtained which associates the fluidity of concentrated return emulsions with the mean diameter of disperse phase particles. Based on the conducted physicochemical investigations, the optimum formula of the 2,4-D butyl ether return emulsion concentrate and the procedure for preparation of the concentrated return emulsion having maximal viscosity were developed.

2/2

USSR   UDC 661.143

KHUDENSKIY, YU. K., TISHCHENKO, V. G., VOYEVODA, L. V., and BEZUGLYY, V. D.

"Electro-Fluorescent Substance"

USSR Author's Certifictae No 335967, filed 16 Mar 68, published 18 Aug 72
(from Referativnyy Zhurnal -- Khimiya, No 12(II), 1973, Abstract No 12Li82P
by V. D. Matveyev)

Translation: This electro-fluoric substance is used to manufacture electro-
chemical indicator systems in computer technology and in systems for auto-
matic control and has a luminescence during the application of an electric
current across an electrode in liquid solutions. It contained dimethylfor-
manide as a solvent, lithium halide as an electrolyte, and benzophenanthrene
as an electrophor. A change in the above mentioned electrolyte from tetra-
butylammoniumperchlorate to LiCl increases the intensity of the electrofluoric
lumniscence 10 fold. The substance is made of a solution containing 0.004-
0.9 g LiCl and 0.002-0.2 g benzophenanthrene and dimethylformamide. For example,
0.002 g of benzophenanthrene and 0.16 g of LiCl are dissolved in 100 ml of
reagent grade dimethylformanide. The prepared solution is placed in the
electrofluoric ampule and an alternating current approximately 10 milliamps
is applied at approximately 6.3 volts. The lumniscence obtained in the of 420-
470 microns was 10 times the luminescence obtained for the electrophor.
1/1

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1/2   016   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--USE OF POLAROGRAPHY FOR CONTROLLING THE PRODUCTION OF
  4,ACETYLNAPHTHALIC ANHYDRIDE -U-
AUTHOR-(05)-KOTOK, L.A., SHEVCHENKO, E.A., BEZUGLYY, V.D., KRASOVITSKIY,
  B.M., SLEZKO, G.F.
COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. UKR. 1970, (1), 46-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--REACTION KINETICS, NAPHTHENE, OXIDATION, POLAROGRAPHIC
  ANALYSIS, ANPHTHALENE, CARBOXYLIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0739   STEP NO--UR/0436/70/000/001/0046/0048

CIRC ACCESSION NO--AP0119646
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0119646
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF
4,ACETYLACENAPHTHENE (I) FORMATION AND OF ITS OXIDN. WITH NA SUB2 CR
SUB2 OR SUB7 WERE STUDIED.   I WAS DETD. IN THE SYNTHESIS PROCESS BY
POLAROGRAPHIC ANAL. OF A SAMPLE IN A SUPPORTING ELECTROLYTE OF 0.02 N ET
SUB4 NI SOLN. IN 92PERCENT MEOH. THE YIELD OF I DURING ACETYLATION OF
ACENAPHTHENE IN THE PRESENCE OF SNCL SUB2 AT 100 AND 120DEGREES IS GIVEN
AS A FUNCTION OF TIME. TO ANALYZE THE MIST. OF 4,ACETYLNAPHTHALIC AND
1,4,5,NAPHTHALENETRICARBOXYLIC ACIDS RESULTING FROM OXION. OF I, THE H
SUB2 O LAYER CONTG. THEIR NA SALTS WAS ACIDIFIED WITH HCL AND EXTD. WITH
C SUB6 H SUB6 AND ANALYZED POLAROGRAPHICALLY IN A SUPPORTING ELECTROLYTE
OF 0.1 N CACL SUB2-ALC. SOLN. CONTG. 0.01 N LIOH.   FACILITY:
RUBEZHAN. KHIM. KOMB., RUBEZHNOE, USSR.

USSR

BEZUGLYY, V. P., and KASKEVYCH, L. M.

Gostri Otruyennya Pestytsydamy (Klinika ta Persha Dopomoga) (Acute Pesticide Intoxications, Clinical Symptoms and First Aid), Kiev, Zdorov'ya, 1971, 28 pp

Translation: Annotation: Some general properties of different types of pesticides, their toxicodynamics, characteristics of the clinical manifestation of intoxication, and general principles of rendering medical assistance, depending on the route of entry of the pesticide into the organism, are described in the pamphlet. Information concerning the clinical symptoms of acute intoxications by pesticides with a different chemical structure, and the mechanism of their toxic action is provided. Methods of pathogenetic and symptomatic therapy applied in acute intoxications by different types of pesticides are described in detail.

The pamphlet is intended for use by fel'dshers in rural fel'dsher and fel'-dsher-obstetrical points and district hospitals. It may be useful also to the mass of readers inasmuch as it acquaints them with the character of the effect of different types of pesticides on the organism.
1/2

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USSR

BEZUGLYY, V. P., and KASKEVYCH, L. M., Zdorov'ya, 1971, 28 pp

2/2

1/2   017   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--CHLORINATION OF MAGNESIUM OXIDE BY CHLORINE DISSOLVED IN POTASSIUM
   CHLORIDE -U-
AUTHOR-(02)-BEZVORITNIY, V.A., BEZUKLADNIKOV, A.B.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 518-21

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORINATION, MAGNESIUM OXIDE, MOLTEN CHLORIDE, CHLORINE,
   SOLUBILITY, CHEMICAL REACTION KINETICS, PHYSICAL DIFFUSION, MAGNESIUM
   CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1926   STEP NO--UR/0080/70/043/003/0518/0521

CIRC ACCESSION NO--AP0108255
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0108255

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   THE TITLE REACTION, OCCURRING IN A
HETEROGENEOUS SYSTEM WHICH CONSISTS OF SOLID MGO AND DISSOLVED CL IN
FUSED KCL, WAS INVESTIGATED.   THE PRODUCTS ARE MGCL SUB2 AND O SUB2.
THE SOLY. OF CL IN KCL AT 910DEGREES IS 1.8 TIMES 10 PRIME NEGATIVE3
MOLE PERCENT.   THE REACTION OCCURS AT THE MGO-KCL INTERFACE.   KINETIC
DATA SHOWED THAT THE REACTION RATE IS DETD. BY THE DIFFUSION RATE OF CL
TO THE MGO-KCL INTERFACE.   ACTIVATION ENERGY WAS DETD. AS 74.9 J-MOLE.

UNCLASSIFIED

1/2   006   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--COMPARATIVE INVESTIGATION OF SOME SPECIES OF DIGITALIS TO DETERMINE
THE CONTENT OF LANATOSIDES A, B, AND C -U-
AUTHOR-(03)-SMIRNOVA, N.O., BEZUKLADNIKOVA, N.F., LIBIZOV, N.I.

COUNTRY OF INFO--USSR

SOURCE--FARMATISYA, MOSCOW 1970, 19(2), 36-9

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROCESSED PLANT PRODUCT, CARDIOVASCULAR DRUG, CHEMICAL
ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0652   STEP NO--UR/0466/70/019/002/0036/0039

CIRC ACCESSION NO--AP0131257
                          UNCLASSIFIED

2/2   006   UNCLASSIFIED   PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0131257
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. OF 13 SPECIES OF FOXGLOVE
(DIGITALIS), LAMARCK (CONTG. MAINLY A) AND ASH GREY (MAINLY C) WERE THE
BEST AS RAW MATERIAL FOR DIGITOZIN, ACETYLDIGITOXIN, AND LANATOSIDE C.
ALL 13 WERE POS. FOR LANATOSIDES (0.112-0.624PERCENT). THE RANGE FOR A
WAS 0.065-0.601PERCENT, WITH HIGHEST IN LAMARCK; FOR B, 0.005-0.114,
HIGHEST IN SMALL FLOWERED; AND FOR C, 0.003-0.150PERCENT, HIGHEST IN ASH
GREY. AS COMPARED WITH BIENNIAL AND PERENNIAL, ANNUAL SPECIES CONTAINED
THE LARGEST AMT. OF TOTAL A,B,C, WHICH DECREASED WITH AGE.
FACILITY: VSES. NAUCH.-ISSLED. INST. LEK. RAST., BITTSA, USSR.

UNCLASSIFIED

USSR

UDC 622.248.67

BEZUMOV, V. V., MOCHALOV, V. F., and UTEBAYEV, B. K.

"Cutting a New Shaft in Well SG-2 -- Biikzhal at a Depth of 4985 Meters"

Moscow, Bureniye, No 9, 1972, pp 9-12

Abstract: A detailed description is given of the drilling of a new shaft at
a depth of 4895 meters in well SG-2 Biikzhal, with the aim of effecting the
greatest possible avoidance, by the new shaft, of the zone of a complication
present in the interval between 5060 and 5553 meters. Successful cutting of
the new shaft was facilitated by the employment of ball-pivot turbine de-
flector and a single-cutter bit. 2 figures. 1 table.

1/1

BEZUSYY, L. G

(1)

- 11 -

LAMINAR-FLOW LIQUID-METAL MAGNETOHYDRODYNAMIC SYSTEMS AND SYNCHRONOUS GENERATION
OF ELECTRIC POWER

The primary difficulties when implementing liquid-metal
magnetohydrodynamic generators by the known designs consist
in accelerating the liquid-metal to high velocities before
the channel, which is connected with high losses to friction
in the two-phase nozzle and channel. If the expansion of
the vapor (gas) is transferred to the channel, then the
electrical conductivity of the flow (the vapor-liquid
mixture) is significantly reduced. The magnetohydrodynamic
generator in which the liquid-metal flow is separated in-
to segments (liquid pistons) moving as a result of ex-
pansion of the medium (vapor or gas) between them appears
to be much more prospective. Our preliminary experiments
have demonstrated the possibility of obtaining a piston-
like (laminar) flow. The utilization of this principle
permits: 1) organization of the acceleration process
without shocks and mutual slipping of the phases; 2)
maximum reduction of the thermal contact surface between
the phases and an increase in the thermodynamic efficiency
of the cycle, realizing it in a broader temperature range;
3) realization of a constant flow velocity in the channel;
4) the production of electric power by a synchronous
magnetohydrodynamic generator. The application of the
synchronous principle combined with the described method
of accelerating the liquid-metal permits the consideration
that high-power generators can be built. The thermodynamic
cycles of liquid-metal magnetohydrodynamic generators
can be divided into two groups with respect to condensation
temperature: high-temperature generators designed for use

TITLE--THE IMPORTANCE OF DYSFUNCTION OF THE ADRENALS IN THE PATHOGENESIS
  OF DIABETES MELLITUS AND DIABETIC ANGIOPATHIAS -U-

AUTHOR-(05)-KOMISSARENKO, V.P., YEFIMOV, A.S., POVOLOTSKAYA, G.M.,
  LIMANSKAYA, G.F., BEZVERKHAYA, T.P.

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 5, PP 118-123

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIABETES MELLITUS, ADRENAL GLAND, HORMONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1772   STEP NO--UR/0497/70/048/005/0118/0123

CIRC ACCESSION NO--AP0129140
                              UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0129140
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE COMPLEX EXAMINATION OF 194
PATIENTS SUFFERING FROM DIABETES MELLITUS REVEALED DYSFUNCTION OF THE
ADRENALS MANIFESTED BY AN INCREASE OF THE GLUCOCORTICOID, ANDROGENIC AND
ADRENAL FUNCTION IN A SIMULTANEOUS REDUCTION OF THE MINERALOCORTICOID
ACTIVITY. THE NOTED DISTURBANCE WAS CHARACTERITIC FOR PATIENTS DURING
DECOMPENSATION OF THE DISEASE. WITH THE CONCOMITANCE OF VASCULAR
COMPLICATIONS THERE WAS SEEN A MORE MARKED RISE OF THE CATECHOLAMINE AND
ADROGENIC ACTIVITY. GLUCOCORTICOID HYPERFUNCTION OF THE ADRENALS WAS
MORE PECULIAR TO PATIENTS WITH INITIAL FUNCTIONAL LESIONS OF THE
VESSELS. A SUPPOSITION IS MADE ON THE POSSIBLE PATHOGENETIC ROLE OF
HYPERPRODUCTION OF CONTRINSULAR ADRENAL HORMONES IN THE DEVELOPMENT OF
DIABETIC ANGIOPATHIAS.   FACILITY: KIEV. N-I INSTITUT
ENDOKRINOLOGII I OBMENA VESCHESTV.

UNCLASSIFIED

1/3   029   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--EMISSIVITY AND REFLECTIVITY OF ICE IN IR SPECTRUM -U-

AUTHOR-(03)-BEZVERKHNIY, SH.A., BRAMSON, M.A., MOISEYEVA, YE.V.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR. FIZIKA ATMOSFERY I OKEANA, VOL VI,
 NO 3, 1970, PP 314-317
DATE PUBLISHED------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ICE, IR SPECTRUM, EMISSIVITY, LIGHT REFLECTION COEFFICIENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/0725   STEP NO--UR/0362/70/006/003/0314/0317

CIRC ACCESSION NO--AP0110454
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0110454
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE IR REGION OF THE SPECTRUM
  ICE IN SMALL THICKNESSES COMPLETELY ABSORBS THE REFRACTED FLUX AND
  THEREORE FOR CASES OF PRACTICAL IMPORTANCE THE EMISSIVITY IS E GAMMA
  EQUALS 1 MINUS P LAMBDA, WHERE THE REFLECTION COEFFICIENT FOR
  UNPOLARIZED RADIATION IS DETERMINED BY THE FRESNEL FORMULA. THE COMPLEX
  NATURE OF THE REFRACTION COEFFICIENT OF ICE RELATIVE TO AIR IN THE IR
  REGION MAKES IT DIFFICULT TO USE THE FRESNEL FORMULA. ACCORDINLY, AN
  ELECTRONIC COMPUTER WAS USED IN TABULATING THE COMPLEX VALUES. THE
  COMPLEX REFRACTICE INDEX IS DETERMINED AS N LAMBDA EQUALS N LAMBDA MINUS
  JX LAMBDA, WHERE X LAMBDA EQUALS ALPHA LAMBDA PRIME LAMBDA-4 PI IS THE
  ABSORPTION INDEX, ALPHA LAMBDA IS THE ABSORPTION COEFFICIENT, N IS THE
  REFRACTIVE INDEX. THE N 2 AND XCHI ALMBDA VALUES ARE ESSENTIALLY
  DEPENDENT ON WAVELENGTH AND THEIR VALUES ARE FOUND EXPERIMETNALLY. THE
  STUDIES OF THE RADIATION OF ICE IN THE IR SPECTRUM REVEAL THAT: 1. THE
  GREATEST CHANGES ARE OBSERVED WITH AN INCREASE IN THE ANGLE OF SIGHT OF
  THE S COMPONENT; THE P COMPONENT INCREASES TO A BREWSTER ANGLE (OMICRON
  RHO APPROXIMATELY EQUAL TO 1), FOLLOWED BY A DROPOFF, BUT SLOWER THAN
  FOR THE UNPOLARIZED FLUX OR THE S COMPONENT. 2. THE UNPOLARIZED
  RADIATION IN THE SIGHTING ANGLES FROM 0 TO 40DEGREES AND THE P COMPONENT
  IN THE RANGE FROM 0 TO 60-70DEGREES ARE EXTREMELY CLOSE TO UNITY. THE
  GREATEST SPATIAL STABILITY IS EXHIBITED BY THE P COMPONENT OF RADIATION
  IN THE RANGE OF CHANGE OF SIGHTING ANGLES PSI PLUS OR MINUS
  10-15DEGREES. 3.

UNCLASSIFIED

CIRC ACCESSION NO--AP0110454
ABSTRACT/EXTRACT--THE SPECTRAL VARIATION OF THE EMMISSIVITY OF ICE IS
  CHARACTERIZED BY THE PRESENCE OF EXTERNAL POINTS, FOR THE MOST PART
  CORRESPONDING TO THE SIMILAR N LAMBDA AND CHI LAMBDA MAXIMA AND MINIMA.
  HOWEVER, THE EXTREMA ARE MANIFESTED CONSIDERABLY MORE WEAKLY,
  PARTICULARLY FOR LARGE SIGHTING ANGLES. 4. THE SHARPEST CHANGES ARE
  EXHIBITED BY THE SPECTRAL CHARACTERISTICS OF THE P COMPONENT OF
  REFLECTION NEAR BREWSTER ANGLES 50 SMALLER THAN PSI SMALLER THAN
  60DEGREES. SINCE THE BREWSTER ANGLE IS ALSO A SELECTIVE CHARACTERISTIC,
  THEN P LAMBDA YIELDS 0 FOR DIFFERENT WAVELENGTHS FOR DIFFERENT VALUES OF
  THE PSI ANGLE. AS A RESULT, THE SHAPES OF THE SPECTRAL CURVES ARE
  IMPAIRED AND ADDITIONAL MAXIMA AND MINIMA APPEAR ON THE CURVES PSI
  EQUALS 50 AND 60DEGREES. THERE IS A RELATIVE COINCIDENCE OF THE
  SPECTRAL DISTRIBUTION OF EMISSIVITY AND REFLECTIVITY OF ICE AND WATER.
  HOWEVER, THE QUANTITATIVE DIFFERENCE ARE CONSIDERABLE, PARTICULARLY IN
  THE LONGWAVE PART OF THIS SPECTRAL REGION.

UNCLASSIFIED

1/2   017   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--CHLORINATION OF MAGNESIUM OXIDE BY CHLORINE DISSOLVED IN POTASSIUM
  CHLORIDE -U-
AUTHOR-(02)-BEZVORITNIY, V.A., BEZUKLADNIKOV, A.B.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL, KHIM. (LENINGRAD) 1970, 43(3), 518-21

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORINATION, MAGNESIUM OXIDE, MOLTEN CHLORIDE, CHLORINE,
  SOLUBILITY, CHEMICAL REACTION KINETICS, PHYSICAL DIFFUSION, MAGNESIUM
  CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1926   STEP NO--UR/0080/70/043/003/0518/0521

CIRC ACCESSION NO--AP0108255
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0108255
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE REACTION, OCCURRING IN A
HETEROGENEOUS SYSTEM WHICH CONSISTS OF SOLID MGO AND DISSOLVED CL IN
FUSED KCL, WAS INVESTIGATED. THE PRODUCTS ARE MGCL SUB2 AND O SUB2.
THE SOLY. OF CL IN KCL AT 910DEGREES IS 1.8 TIMES 10 PRIME NEGATIVE3
MOLE PERCENT. THE REACTION OCCURS AT THE MGO-KCL INTERFACE. KINETIC
DATA SHOWED THAT THE REACTION RATE IS DETD. BY THE DIFFUSION RATE OF CL
TO THE MGO-KCL INTERFACE. ACTIVATION ENERGY WAS DETD. AS 74.9 J-MOLE.

UNCLASSIFIED

USSR   UDC 621.912-492.2

BEZYKORNOV, A. I., BOGOMOLOV, N. I., GURINCHUK, I. I., KOVAL'CHENKO, M. S.
KONOVALOVA, Ye. S., and PADERNO, Yu. B., Institute of Problems of Material
Science, Academy of Sciences Ukr SSR

"Investigation of the Form, Durability, and Abrasive Ability of Grains of
Refractory Compound Powders"

Abstract: The results are presented of an investigation of the form, strength,
and abrasive properties of powders of fused titanium and niobium carbides and
calcium boride, in comparison with certain data on synthetic corundum. The
results show that the deviation from grain isometricity of niobium carbide is
larger than that of titanium carbide; that the strength of niobium and titanium
carbides with a grain size of more than 250 μ is higher than that of calcium
boride and white synthetic corundum grains, while at smaller grain sizes the
opposite is true. The compounds considered here may be ordered with respect
to their increasing abrasive power, beginning with synthetic corundum: EB-NbC-
TiC-CaB$_6$ = 1-1.18 - 1.36 - 1.88.

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USSR

UDC 539.538.669.018.45

BEZYKORNOV, A. I., BOGOMOLOV, N. I., and KOVAL'CHENKO, M. S., Institute of Problems of Material Sciences, Academy of Sciences UkrSSR

"Investigation of the Wear Resistance of Refractory Compounds During Continuous Microcutting of Titanium and Nickel"

Abstract: A study is made of the wear resistance of a number of refractory compounds during continuous microcutting of titanium and nickel under conditions of facing. It is established that wear resistance during high-speed cutting depends to a great extent on the degree of physico-chemical interaction of contact pairs, and at low speeds is basically determined by their mechanical properties. The experiments were carried out on a 1K62 lathe. Continuous microcutting speed was 0.2 to 34.4 m/sec, the pressure on the microcutting tool was 0.2 kg and longitudinal feed was 0.07 mm/revolution. Hafnium and tungsten carbides posses the highest wear resistance and refractoriness during microcutting of titanium, while during the microcutting of nickel and iron, aluminum oxide and tungsten carbide display the best wear resistance.

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Refractory Materials

USSR   UDC 669.018.25

BEZYKORNOV, A. I., BOGOMOLOV, N. I., and KOVAL'CHENKO, M. S., Institute of
Problems of Material Science, Academy of Sciences Ukrainian SSR

"Study of the Cutting Properties of Refractory Compounds in Intermittent
Microcutting of Titanium and Nickel

Kiev, Poroshkovaya Metallurgiya, No. 10, Oct 70, pp 66-72

Abstract: Data are presented on the wear of certain refractory compounds
in intermittent cutting of metals having different properties, namely
titanium and nickel under conditions similar to those for polishing. The
microcutting was performed on a 3G71 surface grinder at a cutting rate of
35 m/sec. The heat release in the cutting zone and the emerging tempera-
ture gradient from the cutting zone toward both the cutting material and
the material being machined appears to cause high thermal stresses and
brittle cleavage of individual grain sections. In addition to brittle
failure, which to some extent causes grain wear, there appears to be a

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BEZYKORNOV, A. I., et al, Poroshkovaya Metallurgiya, No. 10, Oct 70,
pp 66-72

physicochemical interaction between both materials. The refractory com-
pounds which interact to a lesser extent with the metal being machined show
better wear properties at higher cutting rates. In microcutting titanium,
metal-like refractory compounds exhibit higher wear resistance than does
aluminum oxide. Some of these refractory compounds compare to silicon
carbide. In microcutting nickel and iron, the best results were shown by
aluminum oxide.

2/2

1/2   019   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--PRODUCTION OF REFRACTORY COMPOUND POWDER GRINDING MATERIALS -U-

AUTHOR-(04)-BEZYKORNOV, A.I., DOBROVOLSKY, A.G., KOVALCHENKO, M.S., FOMIN,
L.M.
COUNTRY OF INFO--USSR

SOURCE--POROSHKOVAYA MET., FEB. 1970, (2), 108-110

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--INDUSTRIAL PRODUCTION, REFRACTORY MATERIAL, GRINDING, TUNGSTEN
CARBIDE, ZIRCONIUM CARBIDE, BORIDE, SINTERING FURNACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0135   STEP NO--UR/0226/70/000/002/0108/0110

CIRC ACCESSION NO--AP0123907
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0123907
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SIMPLE METHODS OF OBTAINING FINE
GRAINED hC, ZRC, AND W SUB2 B SUB5 POWDERS FOR THE MANUFACTURE OF
GRINDING WHEELS AND ABRASIVE CLOTH ARE DESCRIBED. THE ORIGINAL
COMMERCIALLY PURE MATERIALS ARE PRESSED INTO BLOCKS IN A HYDRAULIC PRESS
AND SINTERED; THESE ARE LATER CRUSHED AND THE GRAINS ARE GRADED BY SIZE
(TYPICAL YIELD 20PERCENT 400-500 AND 15PERCENT 120-160 MU M).   THE
MICROHARDNESS OF THE GRAINS ARE SIMILAR TO 2000-3000 KG-MM PRIME2,
DEPENDING ON THE PRECISE METHOD OF PROCESSING. REPEATED PROCESSING OF
ABRASIVE POWDER WASTE MAY LEAD TO A DISADVANTAGEOUS CHANGE IN CHEMICAL
COMPOSITION.

UNCLASSIFIED

THE IMPORTANCE OF ELECTROENCEPHALOGRAPHY AS AN INDICATION FOR PROPER SELECTION OF PATIENTS WITH ITCHING DERMATOSES FOR SONICA-TION TREATMENT

N. S. Smelov, A. P. Khrunova, A. S. Bezzabotnov, V. S. Angelova, V. I. Makovoz

Summary

Clinico-laboratory observations demonstrated the efficacy of sonication in treatment of patients with itching dermatoses. Detection of an inhibition process according to EEG is a contraindication to sonication treatment. This permits to recommend electroencephalographic examination to be used for proper selection of patients for treatment.

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REEL/FRAME
19790858

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USSR   UDC: 654.91/.92:62-783.2

LEVINZON, S. V., BEZZUBOV, V. I.

"One Method of Construction of Group Signalling Circuits in Power Supplies"

Translation: A method is described for constructing circuits for group signalling of the level of voltage in power supplies having several input voltages, in which the current through the voltage dividers which are the signal sensors is independent of the tested voltage. The sensor used is a Schmitt flip-flop, the actuating device is a keyed amplifier stage with a load in the collector circuit. 4 figures; 4 referenses.

USSR

BEL'SKIY, V. YE., BEZZUBOVA, N. N., YEFREMOVA, M. V., and NURETDINOV, I. A.,
Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov Acad. Sc.
USSR

"Kinetics of Alkaline Hydrolysis of Some Selenophosphorusorganic Compounds"

Abstract: Reaction kinetics of the investigated compounds in aqueous alkaline
solutions is of the first order both in regard to the substrate as well as the
OH⁻ ions. This appears to be analogous to alkaline hydrolysis of other phos-
phorusorganic compounds in which the reaction occurs via the S_N2 mechanism at
the phosphorus atom. Reactivity of selenophosphorusorganic compounds appears
to be the same order reaction as that of the oxygen and sulfur analogues, if
the selenium is in the P=Se group.

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USSR

BEL'SKIY, V. Ye., BEZZUBOVA, N. N., YELISEYENKOV, V. N., and PUDOVIK, A. N.,
Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, USSR
Academy of Sciences

"Kinetics of the Hydrolysis of Mixed Esters of Methylphosphonic Acid Which
Contain P-O-C and P-S-C Bonds"

Abstract: As a continuation of studies begun in 1969, the authors examined
the reactions between water and the OH$^-$ ion, and a number of the derivatives
containing P-O-C and P-S-C bonds.

It was concluded from kinetic data that the reaction between water and the
mixed esters having the P-O-Alk and P-S-Alk groups includes breaking of the
C-O bond. Further, the effect of $p_\pi - d_\pi$ interaction between phosphorus
and thiol sulfur on reactivity is insignificant. The linear relationship
between the rate constants of hydrolysis for the mixed thiolphosphonates
and fluorides of phosphorus-containing acids of similar structure was
shown.
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- 37 -

BEL'SKIY, V. Ye., BEZZUBOVA, N. N., AKAMSIN, V. D., YELISEYENKOV, V. N.,
RIZPOLOZHENSKIY, N. I., and PUDOVIK, A. N., Corresponding Member of the
USSR Academy of Sciences

"Reactivity of Phosphonic Acid Esters and Their Thio-Analogs in Alkaline
Hydrolysis"

Abstract: Nucleophilic substitution on the phosphorous atom decreases on re-
placement of the phosphoryl oxygen by sulfur. This was established as a result
of studying the kinetics of hydrolysis of various esters and acid chlorides of
phosphoryl oxygen. However, it still remained unclear whether the reaction
rate changed to an equal extent on replacement of the P=O by P=S for a series
of compounds with close structure. This paper contains a study of the kinetics
of alkaline hydrolysis of some esters and thio esters of substituted phosphonic
and thiophosphonic acids. The data obtained permits the conclusion to be
drawn that the change in reactivity on converting from phosphoryl to thio-
phosphoryl compounds essentially depends on the nature of the substitutions
on the phosphorus, and a decrease in the reaction rate constant does not
1/2

USSR

always occur. The mechanism of this effect is discussed, the experimental procedure is presented, and tables of values are given for the activation energy E and the pre-exponential factor A in the equation $K = A \exp (-E/RT)$ for the reaction with OH^--ion, and the hydrolysis rate constants of KOH.

A definite tendency toward an increase in absolute magnitude of the pre-exponential factor is noted on the replacement of oxygen atoms by sulfur in phosphonates. If it is considered that nucleophilic substitution on the phosphorus requires the formation of a pd-bond in the activated complex, the increase in the pre-exponential factor indicates high availability of the d-orbitals of phosphorus in the thio-derivatives for nucleophilic attack.

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1/2   030   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--HEPATO PORTAL ENCEPHALOMYELOPATHY -U-

AUTHOR-(04)-BGOLEPOV, N.K., MARTYNOV, YU.S., MALKOVA, YE.V., TSIVILKO,
  V.S.
COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,
  VOL 70, NR 4, PP 496-506
DATE PUBLISHED------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER, BILE, BRAIN, SPINAL CORD, BONE MARROW, CIRRHOSIS, DIET,
  MEMORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1661   STEP NO--UR/0246/70/070/004/0496/0506

CIRC ACCESSION NO--AP0106407
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0106407

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRESENTATION IS CONCERNED WITH THE DESCRIPTION OF A NEW ORIGINAL FOR OF PATHOLOGY: HEPATO PORTAL ENCEPHALOMYELOPATHY, DEVELOPING IN PORTECAVAL DYSCIRCULATORY DISORDERS IN 54 PATIENT WITH DIFFERENT DISEASES OF THE LIVER AND THEI BILIARY TRACT.   THE AGE OF THE PATIENTS RANGED FROM 16-63.   IN 9 CASES THERE WAS A PATHOHISTOLOGICAL STUDY OF THE BRAIN AND SPINAL MARROW, AND A HISTOCHEMICAL STUDY OF THE BRAIN TISSUE AND LIVER FOR CU. ENCEPHALOMYELOPATHY OCCURS AT THE DIFFERENT STAGES OF LIVER CIRRHOSIS FORMATION AND IS CHARACTERIZED BY POLYMORPHIC NEUROPSYCHIC DISORDERS IN THE FORM OF MEMORY AND ATTENTION WEAKENING, INTELLECTUAL LOWERING, DIFFERENT PYRAMIDAL AND EXTRAPYRAMIDAL DISTURBANCES, SYMPTOMS OF ORAL AUTOMATISMS, PELVIC DISORDERS.   THE SPECIAL FEATURS OF PATHOMORPHOLOGICAL AND HISTOCHEMICAL BRAIN LESIONS IN HEPATO PORTAL ENCEPHALOMYELOPATHY, CONDITIONED BY CHRONIC LIVER AND BILIARY TRACT PATHOLOGY IN COMPARISON WITH WILSON KONOVALOV DISEASE IS THE ABSENCE OF CU IN THE BRAIN TISSUES AND LIVER, AS WELL AS THE ABSENCE OF THE I AND II TYPE OF ALZHEIMER'S GLIA.   COMMON FOR BOTH DISEASES IS THE FEATURES OF THE PARENCHYMATOUS CELLULAR AND VASCULAR PATHOLOGY OF A TOXIC NATURE AND THE PHENOMENA OF FIGURATIVE NUCLEI OF THE ASTROCYTE GLIA.   THE TREATMENT OF ENCEPHALOMYELOPATHY SHOULD FIRST OF ALL BE DIRECTED AGAINST THE MAIN DISEASE AND SHOULD INCLUDE MEDICATIVE PREPARATIONS, A DIET, AND IN SOME CASES SURGICAL TREATMENT.

UNCLASSIFIED

USSR

UDC 612.82+612.822.6

BIANKI, V. L., Laboratory of Comparative Physiology of the Paired Function of the Brain, Biological Institute, Leningrad University

"A Comparison Hypothesis of Spatial Orientation"

Abstract: Groups of white laboratory mice and rats were subjected to 30 flashes of a bright light, following which the functional state of each cerebral hemisphere was tested for the speed with which single-hemisphere electrical defense conditioned reflexes were formed. On the basis of these experiments, the following hypothesis was formulated: during analysis of the spatial location of visual stimuli, the paired activity of the cerebral hemispheres may be though of as the action of a unique comparator, which carries on permanent comparison of the representations of excitation in the symmetrical centers.
    The experiments clearly established the existence of interhemisphere functional asymmetry, which is dependent on the location in space of the visual stimulus. For example, when a laterally located light source was used, increased excitability occurred in   the contralateral hemisphere and lowered excitability occurred in the ipsilateral hemisphere. When a centrally located
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source was used, the excitability of both hemispheres was increased. These
phenomena are the result of the formation of a dominant focus of excitability
in the contralateral hemisphere or in both hemispheres, as the case may be.
    In addition to the principle of the dominant, which controls its opera-
tion, there is another aspect of the brain's comparison mechanism, which is
manifested when the position of the light source is moved. In this case,
the paired activity of the hemispheres is the result of a comparison of the
physiological model of the previous stimulus with the spatial location at the
new stimulus.

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USSR

UDC 12.825

BIANKI, V. L., recommended by the Chair of the Physiology of Higher Nervous Activity, Leningrad State University imeni A. A. Zhdanov

"The Effect of Unilateral Polarization of the Cerebral Cortex on the Interaction of Symmetrical Centers"

Abstract: In mice, polarization of the left visual cortex with a cathodal 4 mca direct current causes facilitation of evoked potentials in response to light stimuli (applied to one and then the other eye) in the polarized hemisphere. Thus, the EP amplitude increases by about 20% but, after discontinuation of polarization, it gradually returns to normal. At the same time, inhibition takes place in the right hemisphere, with the EP amplitude decreasing by 10% during and by an additional 10% after polarization. As a result, a pronounced contrast develops in the activity of the two hemispheres. After section of the entire corpus callosum, unilateral polarization facilitates evoked potentials in both hemispheres, though usually to a greater degree on the ipsilateral side. As a result, the contrast between the two hemispheres is either small or absent. The findings indicate that the corpus callosum plays a role in creating functional asymmetry between anatomically symmetrical centers.
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USSR

UDC 632.95

KREMLEV, M. M., BIBA, A. D.

"Procedure for Obtaining Arenesulfonyltrichloromethanesulfenylamides"

USSR Author's Certificate No 301330, filed 19 Nov 69, published 21 Jun 71 (from RZh-Knimiya, No 6(II), Jun 72, Abstract No 6N545P)

Translation: Arenesulfonyltrichloromethanesulfenylamides with the general formula $RSO_2NHSCCl_3$ (I R = aryl) which can be used as physiologically active compounds and in the synthesis of compounds with the 1,3-diazetidin structure are obtained by the reaction of arenesulfonylamide with trichloromethanesulfenyl-chloride (II) in a dry organic solvent in the presence of NEt_3 (III) with subsequent separation of the I. Benzenesulfonylamide in the amount of 31.4 grams is put in a 500 milliliter flask, dissolved with heating in 250 ml of dry C_6H_6 the flask temperature is kept below 30°. Twelve hours later the mass is heated (0-60°) for 2 hours. The precipitate is separated, the C_6H_6 is evaporated in a vacuum, and the oily product obtained is dissolved in 300 ml of ether. The ether solution is washed with 2×250 ml of water and dried over Na_2SO_4 and evaporated under vacuum. After 5-6 hours, the product is crystallized; 24.5 g of I (R = Ph) is obtained with a melting point of 101° (heptane). The I is obtained analogously (R, the yield in percent, the melting point is °C are given): $p-CH_3C_6H_4$, 57, 119-21; $p-ClC_6H_4$, 60, 133-4°; $p-BrC_6H_4$, 47, 130-1.

USSR   UDC 547.269.352.1

BIBA, A. D., KREMLEV, M. M., ROSITSKIY, A. A., Dneipropetrovsk Chemical-Technological Institute imeni F. E. Dzerzhinskiy

"Synthesis of Bis-trichloromethyl Sulphenyl Esters of Arensulphonyl-Imino-Dithiocarbonic Acids"

Abstract: A procedure is proposed for synthesis of previously unknown bis-trichloromethyl sulphenyl esters of arensulphonyl-imino-dithiocarbonic acids (I) consisting in the interaction of $ClSCCl_3$ with dipotassium salts of arensulphonyl-imino-dithiocarbonic acids (II). A number of new salts of (II) were also obtained. Tables of the mentioned salts and esters are presented including the physical and chemical characteristics of these compounds. The structure of the esters was confirmed by infrared spectra of the compounds in which there were intense $\nu(N=C)$ bands in the 1,530 and 890 cm^{-1} range and $\nu(SO_2)$ in the 1,330, 1,165 cm^{-1} range and no absorption band in the 3,600-3,200 cm^{-1} range (no N-H-bond). When testing the compounds as insecticides on rice weevils, they gave positive results.
1/1

USSR   UDC   534

BERZIN'SH, Ya. P., BIBA, Ya. A.

"Problems of Synthesizing a Single-Mass Impact-Oscillation System With
Polyharmonic Excitation"

V sb. Konf. po kolebaniyam mekh. sistem. Tezisy dokl. (Conference on Os-
cillations of Mechanical Systems. Abstracts of the Reports), Kiev, "Nauk.
dumka", 1971, p 9 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10A285)

Translation: The paper deals with the dynamics of unilateral and bilateral
impact-oscillatory systems subjected to polyharmonic external effects.
It is proved that the rate of impact with respect to the fixed end limit
in the unilateral system depends on the constant component of expansion
of the external force in a Fourier series, and is independent of the re-
maining harmonic components of the series.
    It is shown that an additional impact on the other side of the mass
can increase the impact velocity with respect to the main end limit. The
theoretical conclusions are confirmed by the results of modeling of a bi-
lateral springless impact-oscillatory system on the MNB-1 analog computer.

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USSR   UDC: 621.396.9:527.629.78

CHEBOTAREV, R. P., SIDORIN, V. N., POLUSHKIN, G. A., BIBARSOV, R. Sh.,
ISAMUTDINOV, Sh. O., KOLMAKOV, V. M.

"A Set of Equipment for Radar Studies of Meteors in Dushanbe"

Translation: The authors describe a set of equipment for measuring the wind
in the upper atmosphere in the IQSY program at the Institute of Astrophysics
of the Academy of Sciences of the Tadzhik SSR. The equipment is designed
for determining coordinates, altitudes, radiants and velocities of meteors,
and for studying the physics of meteors and of the upper atmosphere. Data
are given in brief for operation of the equipment complex. Resumé.

1/1

USSR

UDC: 550.834

BIBER, L. A., ZHDANOVA, Yu. Ye., LEGKIY, G. K., All-Union Scientific Research Institute of Electric Power Engineering

"A Seismic Vibration Pickup"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329405, Division G, filed 30 Jul 70, published 9 Feb 72, p 160

Translation: This Author's Certificate introduces a seismic vibration pick-up which contains measurement and balancing transducers. As a distinguishing feature of the patent, the device is designed for measuring the absolute vibration of a rotating shaft. It is equipped with an additional measurement transducer with secondary winding securely connected to a pendulum at its point of rest, and primary winding fastened on a lever which is one of two making up a system in which the other lever carries a contact brush located on one axis with the transducer windings. A pressure spring is also fastened to this other lever. The levers of the system are interconnected by a common axis of rotation, a micrometer screw and a helical spring.

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BIBER, L. A. et al., USSR Author's Certificate No 329405


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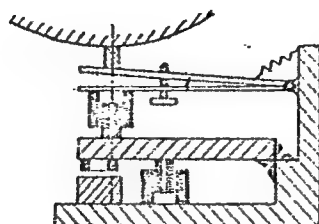
BIBERGAL A.V.

AA 0044279

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

243743 PHANTOM for determination of gamma exposure
dose is a watertight elastic bag in the shape
of a man of average height, with a water inlet and
outlet. An ionization chamber can be introduced to
any desired point through a joint at the top. Breast,
waist and hips can be adjusted to various sizes by
belts which can be tightened.
8.2.62 as 763390/31-16.A.B.BIBERGAL et al.(28.7.69)
Bul 17/14.5.69. Class 21g. Int.Cl.H 05g.

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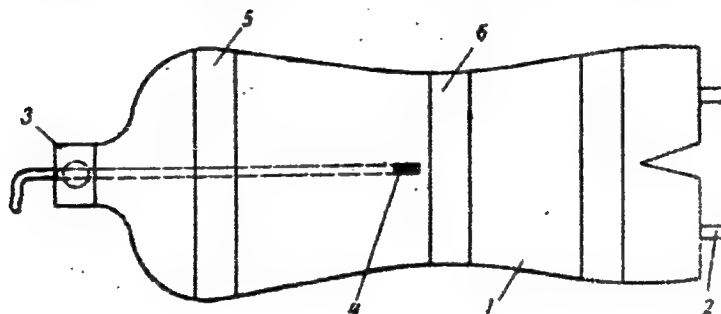
19770811

AA0044279

AUTHORS: Bibergal', A. V., Nikulin, Yu. P., Ratner, T. G.

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19770812

UNCLASSIFIED   PROCESSING DATE--23OCT70

TITLE--ON AUXILIARY EQUIPMENT OF DEPARTMENTS OF RADIUM THERAPY -U-

AUTHOR-(03)-NIKULIN, YU.P., RATNER, T.G., BIBERGAL, A.V.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 5, PP 38-40

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIUM, RADIOTHERAPY, IRRADIATION DOSIMETRY/(U)DIK DOSIMETER, (U)DMA DOSIMETER

CONTROL MARKING--NO RESTRICTIONS'

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0273   STEP NO--UR/0241/70/015/005/0038/0040

CIRC ACCESSION NO--AP0120962
                    UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0120962
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER SETS FORTH THE EQUIPMENT
REQUIRED FOR DOSIMETRIC PREPARATION AND INSTITUTION OF RADIUM THERAPY.
A DESCRIPTION IS GIVEN OF THE DESIGNED DOSIMETERS, INTEGRAL CONDENSATOR
DOSIMETER "KIK" AND "DM-A" POWER DOSIMETER, AS WELL AS SET OF WATER AND
TISSUE EQUIVALENT PHANTOMS.   FACILITY: INSTITUT OBSHCHEY
GENETIKI AN SSSR, MOSCOW. ,

UNCLASSIFIED

USSR

UDC 621.373.521.1:621.382.233(088.8)

OVCHARENKO, V. V., BIBERMAN, L. I.

"Generator of Quasiharmonic Oscillations"

USSR Author's Certificate No 252405, Filed 12 Jul 68, Published 2 Feb 70 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8 D821 P)

Translation: This author's certificate introduces a generator of quasiharmonic oscillations executed from tunnel diodes with band frequency tuning by varying the differential resistance of the diodes included in the inductive and capacitive branches of the oscillatory circuit. In order to expand the frequency tuning band and to improve linearity, the generator is also equipped with a correcting circuit consisting of an emitter repeater, a diode detector and a DC amplifier through which the generator output is connected to the anode of the diode included in the capacitive branch of the oscillatory circuit of the generator. There is one illustration.

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USSR

UDC: 621.373.521.1:621.382.233(088.8)

OVCHARENKO, V. V., BIBERMAN, L. I., Khar'kov Higher Command Engineering Academy

"A Generator of Quasiharmonic Oscillations"

Translation: A generator of quasiharmonic oscillations is proposed which contains a semiconductor diode, a parallel LC tank circuit, and a power supply. To provide simultaneous intercoupled biparametric amplitude-frequency modulation, an additional variable resistor made in the form of a point-contact diode is connected in the capacitive arm of the LC tank circuit, a second variable resistor in the form of a choke-shunted point-contact diode is connected in the inductive arm of the tank circuit, and the modulating signal source is connected to the points where the diodes are tied to the reactive tank circuit elements. V. P.

1/1

USSR

UDC 536.6.011.55:536.244

BIBERMAN, L. M., BRONIN, S. Ya., LAGAR'KOV, A. N., Moscow

"Radiation-Convective Heat Exchange in Hypersonic Flow Over a Blunt Body"

Moscow, Mekhanika zhidkosti i gaza, No. 5, Sep/Oct 72, pp 112-123

Abstract: Flow close to the critical point over a blunt body in a hypersonic air flow is considered. It is assumed that the parameters of the gas at the front of the shock wave are discontinuous and that the gas in the shock wave is in a state of local thermodynamic equilibrium. Heat exchange in the neighborhood of the critical point is determined by examining the gasdynamic conservation equations in conjunction with the radiation transfer equation written in integral form. Viscosity, heat conductivity, and the actual radiation properties of air, including the radiation of the spectral lines, are taken into account. Profiles of the thermodynamic values along the critical line are obtained. The dependence of the radiation and convective components of aerodynamic heating on the velocity, pressure ahead of the front and the radius of curvature of the blunt portion of the body is discussed. Approximate relationships are obtained for heat flows in the neighborhood of

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the critical point which have the form of similarity laws. The limits of
applicability of the approximation of locally thermodynamic equilibrium in
the compressed area are discussed. Also considered is the effect of absorp-
tion of radiation of the compressed air by the cold incident flow on aero-
dynamic heating. The relationship between the spectral coefficient of
absorption of the cold air and the intensity of the radiation incident on it
is taken into account. It is noted that if considerable ablation of the
heat shield and noticeable screening of the surface of the body from radia-
tion due to this occur, the problem is considerably complicated since possible
illumination of the boundary layer must be taken into account in cases of
strong injection. In the opposite case the values of the radiant flows may
be greatly lowered. This formulation of the problem requires the simul-
taneous solution of equations of gasdynamics and physical kinetics consider-
ing radiation transfer. Considerable difficulties arise in considering heat
exchange far from the critical point that are associated with a sharp rise
in the complexity of the system of equations of gasdynamics. It is recommended
that the approximations of the theory of radiation transfer used in this paper
be used in solving this more complex problem.
2/2

USSR

UDC: 629.19:533.6

BIBERMAN, L. M., BRONIN, S. Ya., LAGAR'KOV, A. N.

"Flow Around Blunt Bodies and Heating During Atmospheric Entry"

Tr. Sektsii po chisl. metodam v gaz. dinamike 2-go Mezhdunar. kollokviuma p gazodinamike vzryva i reagiruyushchikh sistem. 1969. T. 3 (Works of the Section on Numerical Methods and Gas Dynamics of the Second International Colloquium on Gasdynamics of Explosion and of Reacting Systems), Moscow, 1971, pp 134-153 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B424)

Translation: The authors consider the problem of aerodynamic heating of blunt bodies entering the atmosphere at velocities exceeding planetary escape velocity. The assumptions made in the paper are substantiated in detail. This enables solution of the problem of determining the total heat flux at the critical point of a blunt body with adequate precision and with acceptable time expenditure. For instance in the case of hypersonic flight velocities it is justifiable to assume that the thickness of the impact layer is small in comparison with the characteristic dimension of the body. It is found that the flow field in the neighborhood of the critical point can be described by a system of ordinary differential equations. It is

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BIBERMAN, L. M. et al., <u>Tr. Sektsii po chisl. metodam v gaz. dinamike 2-go</u>
<u>Mezhdunar. kollokviuma po gazodinamike vzryva i reagiruyushchikh sistem.</u>
<u>1969. T. 3</u>, Moscow, 1971, pp 134-153

shown that the viscous structure of the compression shock need not be taken
into consideration. The problem is solved without separating the impact
layer into an inviscid region and a boundary layer. It is noted that the
final expression for the overall heat flux at the critical point contains
only quantities obtained from solution of the "inviscid" problem with regard
to emission of the gas in the shock wave, and from solution of the "viscous"
problem, but disregarding emission. An iteration method is used for solv-
ing the integrodifferential system of equations. The weak convergence of
the method makes it necessary to use an approximate method for calculating
each step. The gist of the method is outlined. The paper gives graphic
results of computer calculations of curves of the total heat flux and its
convective and radiant components with variation of flight speeds (up to
20 km·s^{-1}) and in the radius of curvature of the nose cone at the critical
point. Bibliography of 17 titles. Yu. V. Vasil'yev.

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BIBERMAN L. M.

shape of the shock wave, the surface pressure distribution, and the wave resistance of the body. The research was performed on a cylinder with spherical bluntness, and on a truncated cone with a developing break. The surface porosity was 60%, the Mach numbers were M = 3-5, and the relative flow rate of the injected gas was varied within the limits of 0 to 1.0. Two experimental regimes were established: a regime with moderate injection intensity (relative flow rate less than 0.2) and a regime of "strong" injection (flow rate greater than 0.2). In the moderate flow regime, a sharp change of the flow characteristics takes place as the rate is increased (increased resistance, shock-wave separation, and increased angle of shock-wave incidence). The flow calculation can therefore be conducted on the basis of boundary-layer theory, taking viscous interaction into account. The regime of "strong" injection is characterized by the presence of a boundary "blow-off" region of the boundary layer. In this case the flow parameters cannot be determined on the basis of boundary-layer theory.

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Biberman, L. M., S. Ya. Bronin, and A. N. Lagar'kov. <u>Heating and flow around blunt bodies during atmospheric entry.</u> IN: Trudy Sektsii po chislennym metodam v razovoy dinamike 2-go Mezhdunarodnogo kollokviuma po gazodinamike vzryva i reagiruyushchikh sistem. 1969, Moskva, v. 3, 1971, 134-153. (RZhMekh, 5/72, no. 5B424)

The problem of the aerodynamic heating of blunt bodies entering the atmosphere at velocities higher than parabolic is considered. A detailed justification is given of the theoretical assumptions, permitting an efficient solution to the problem of determining the total heat flux at the

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UDC 535.33

AVILOVA, I. V., BIBERMAN, L. M., VOROB'YEV, V. S., ZAMALIN, V. M., KOBZEV, G. A., MNATSAKANYAN, A. KH., and NORMAN, G. E., Institute of High Temperatures of the Academy of Sciences USSR

"Optical Properties of Hot Gases. CO_2 + N_2 Mixture"

Abstract: Elementary radiation processes associated with the presence of carbon atoms, either free or in molecules, in planetary atmospheres are studied. Certain spectral and integral characteristics of CO_2 and N_2 mixtures are calculated and compared. Particular attention is given to the composition 90% CO_2 + 10% N_2, which approximately corresponds to the atmosphere of Venus according to data from "Venera-4" and "Mariner-5". Computer programs and a computational technique developed earlier by the authors were used to obtain absorption cross sections for processes associated with atomic hydrogen in CO_2 + N_2 mixtures. The absorption cross sections of CN, CO, CO^+, and C_2 are given for the temperatures 4000, 8000, and 12,000°K. The degree of blackness ϵ, the Rosseland average A, and the Planck average B were calculated for $T = (6-10) \cdot 10^{3}$°K and $P = 0.1-10$ at.

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USSR

AVILOVA, I. V., et al, Teplofizika, vysokikh temperatur, Vol. 8, No. 1, Jan/
Feb 70, pp 1-11

A comparison with experimental data showed that the authors' method of tabu-
lating optical properties of hot gases is applicable to CO_2 + N_2 mixtures and
produces satisfactory accuracy. From the gas dynamics aspect, the calculations
show that radiation transfer plays a considerable role in entry into planetary
atmospheres. It is pointed out that the degree of blackness of the mixture
studied here is considerably greater than that of air and that the difference
is especially great in relatively low temperatures.

2/2

USSR

UDC 533.601.155/.9

BIBERMAN, L. M., MNATSAKANYAN, A. Kh., and YAKUBOV, I. T., Institute of High
Temperatures, Academy of Sciences USSR

"Ionization Relaxation Behind Strong Shock Waves in Gases"

Abstract: The results of recent research in the field of ionization relaxa-
tion is summarized and problems as yet unsolved are pointed out. It is noted
that relaxation phenomena behind shock waves have been discussed in surveys
and monographs but that problems of ionization relaxation were not given suf-
ficiently complete coverage because the basic results in this field were ob-
tained only in recent years. These successes have resulted in intensive ex-
perimental studies at large Mach numbers and progress in the theory of kinetics
in a low-temperature plasma. Problems of ionization kinetics in a plasma,
initial ionization mechanisms, the structure of the relaxation zone, and
radiation of the nonequilibrium zone are discussed in the survey. The table
of contents of this survey follows:

2. Ionization Kinetics in a Low-Temperature Plasma. 2.1 Ionization and

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USSR

BIBERMAN, L. M., et al, Uspekhi Fizicheskik Nauk, No 3, Nov 70, pp 431-462

Recombination in an Atomic Plasma Under Collisions With Electrons. 2.2. Effect of Radiation and Interatomic Collisions on Ionization and Recombination Kinetics. 2.3. Electron Energy Balance. 3. Ionization in the First Stage of Relaxation. 3.1. Ionization in Atomic-Molecular Collisions. 3.2 Ionization Caused by Radiation Transfer. 3.3. Effect of Admixtures on Initial Ionization. 4. Structure of Relaxation Zone. 4.1. Profiles of Plasma Parameters in the Relaxation Zone. 4.2. Comparison of Calculated and Measured Values of Relaxation Times in Atomic Gases. 4.3 Ionization Relaxation Behind Strong Shock Waves in Molecular Gases. 4.4. Stronger Shock Waves. 5. Radiation of the Relaxation Zone. 5.1 Distribution of Atoms With Respect to Excited States in a Nonequilibrium Plasma. 5.2. Nonequilibrium Radiation in Spectral Lines and the Continuum. Maximum of Nonequilibrium Radiation. 5.3 Effective Processes in the Relaxation Zone on Aerodynamic Heating in a Hypersonic Flow. It is noted that there is not now any satisfactory theory for the radiation maximum in a nonequilibrium zone and that this is due to the variety and complexity of elementary processes in a molecular plasma. It is also pointed out that studies have shown that the contribution of nonequilibrium radiation to aerodynamic heating can be disregarded, but this result was obtained for motion in the earth's atmosphere and may be different for other planets.
2/2

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1/2   040

UNCLASSIFIED

TITLE--OPTICAL PROPERTIES OF HOT GASES. CARBON DIOXIDE NITROGEN MIXTURES
-U-

PROCESSING DATE--23OCT70

AUTHOR-(04)-AVILOVA, I.V., BIBERMAN, L.M., ZAMALIN, V.M., KOBZEV, G.A.

COUNTRY OF INFO--USSR

SOURCE--TEPLOVIZ. VYS. TEMP. 1970, 8(1), 1-11

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CARBON DIOXIDE, NITROGEN, ABSORPTION COEFFICIENT, ABSORPITON
SPECTRUM, LIGHT ABSORPTION, TEMPERATURE DEPENDENCE, PRESSURE EFFECT,
VENUS PLANET, ATMOSPHERIC OPTIC PHENOMENON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0139

STEP NO--UR/0294/70/008/001/0001/0011

CIRC ACCESSION NO--AP0103818

UNCLASSIFIED

CIRC ACCESSION NO--AP0103818 UNCLASSIFIED   PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PREVIOUSLY DESCRIBED CALCG. AND COMPUTER PROGRAMMING PROCEDURE (B., ET AL., 1964; A., ET AL., 1969) WAS APPLIED TO THE DETN. OF THE ABSORPTION CROSS SECTIONS RELATED TO C ATOMS IN CO SUB2 PLUS N MIXTS. AND OF THE SPECTRAL AND INTEGRAL CHARACTERISTICS OF THE CO SUB2 90 PLUS N SUB2 10PERCENT MIXT. (CORRESPONDING TO THE VENUS ATM.). THE RESULTS ARE PRESENTED OF THE CALCN. OF SOME PARAMETERS, FOR A TEMP. OF (6-10) TIMES 10 PRIME3 DEGREESK AND A PRESSURE OF 0.1-10 ATM. THE DATA AGREE SATISFACTORILY WITH MEASUREMENTS.   FACILITY: INST. VYS. TEMP., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr:
AP0036827   *ß*

A STUDY OF THE DURATION OF DIPHTHERIA CARRIER STATE AND OF ITS DISTRIBUTION ACCORDING TO AGE

Lazareva, Z. A.; Bibergan, Ye. I.; Kruglyachenko, A. I.

A total of 6,555 persons were examined for carrier state; of this number 132 proved to be carriers. The carriers comprised: 56.7% of children aged from 4 to 6 years, and 22.7% of adults. In 63.9% of the cases the carrier state was transitory, in 3% — of moderate duration, and in 23.5% — prolonged and relapsing. Schick test proved to be negative in all the carriers; it was positive in 3 (1%) of 298 family contacts of the carriers.
The majority of the carriers were suffering from chronic diseases of the nasopharynx, and 4 children — from toxemia of tuberculosis origin.
The use for examination, along with Loeffler's medium, of semifluid enrichment medium offered a possibility of revealing additionally 56 carriers, this constituting 42.3% of the total number of the carriers revealed.

PEEL/FRAME

6

USSR

BIBICHKOVA, R. P.

"Conversion of the Signal/Noise Ratio in a Noise Producing Multicascade Non-linear Device"

Translation: A study was made of the variation of the signal/noise ratio caused by multiple nonlinear transformations considering the natural noise of all the cascades of the system. The study is made by the Rice method for a large signal/noise ratio at the input and in the presence of narrow band filters in all the cascades of the channel. Formulas are obtained by which the noise intensities can be calculated for various sections of the noise spectrum within the limits of the entire noise band of the multicascade device. There is 1 illustration and a 3-entry bibliography.

1/1

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USSR

UDC:538.56:519.25.

BIBICHKOVA, R. P.

"Conversion of Natural Noise by Nonlinear Device"

Tr. TSNII Mor. Flota [Works of Central Scientific Research Institute of Merchant Marine], No. 124, 1970, pp. 47-52 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Zh94 by the Author)

Abstract: The specific features of conversion of natural noise during operation of a nonlinear device with cutoff output current are studied. Two functions for the dependence of the signal/noise ratio on cutoff angle are determined: that resulting from the process of development of noise in a stage itself and that resulting from nonlinear conversions of this noise. On the basis of these functions, recommendations are given for selection of the optimal modes of nonlinear devices and construction of high-frequency transmitter channel circuitry.

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USSR

UDC 669.721.472(088.8)

YELIN, N. M., BURDAKOV, YU. M., KOLOMIYTSEV, A. V., CHALABAYEV, I. A.,
KOLYADZIN, A. A., TSIDVINTSEV, G. V., and BIBIK, G. P., Ust'-Kamenogorsk
Titanium-Magnesium Combine imeni 50th Anniversary of October

"Vacuum Ladle"

Translation: A design is proposed for vacuum ladle which consists of a lock
and a tap hole. To simplify the servicing of the magnesium electrolytic
reduction cells, it is equipped with a teeming device, which is made in the
shape of a branch connection with bottom closing device mounted on the lid
of the ladle.

1/1

UNCLASSIFIED
TITLE--MAGNETO OPTICAL EFFECT OF AGGREGATION IN A TRANSVERSE ELECTRIC   PROCESSING DATE--30OCT70
   FIELD -U-

AUTHOR--BIBIK, YE.YE.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 307

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--COLLOID, OPTIC PROPERTY, MAGNETIC FIELD EFFECT, MAGNETIC
   DIPOLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1653   STEP NO--UR/0069/70/032/002/0307/0307

CIRC ACCESSION NO--AP0112647
                    UNCLASSIFIED

2/2   019
CIRC ACCESSION NO--AP0112647

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OPTICAL EFFECT OF AGGREGATION
IN COLLOIDAL PARTICLES INDUCED BY MUTUALLY PERPENDICULAR MAGNETIC AND
ELECTRIC DIPOLES IS SMALLER THAN IN THE CASE OF THE MAGNETIC FIELD
ALONE.   THIS MAKES IT POSSIBLE TO COMPARE THE ELECTRIC AND MAGNETIC
POLARIZABILITIES OF PARTICLES.

UNCLASSIFIED

TITLE--ON THE ZETA POTENTIAL OF PARTICLES IN MULTICOMPONENT SYSTEMS -U-

PROCESSING DATE--30OCT70

AUTHOR-(03)-BIBIK, YE.YE., SOKOLOVA, YE.A., LAVROV, I.S.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 301-303

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--BARIUM FERRITE, IRON OXIDE, ADSORPTION, COLLOID, CHEMICAL STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1655

STEP NO--UR/0069/70/032/002/0301/0303

CIRC ACCESSION NO--AP0112649

UNCLASSIFIED

CIRC ACCESSION NO--AP0112649   UNCLASSIFIED   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   ZETA POTENTIAL OF THE DISPERSED
PHASE HAS BEEN MEASURED IN A SUSPENSION CONTAINING LARGE (10 PRIME
NEGATIVE5 CM) BARIUM PARTICLES WITH A LOW ZETA POTENTIAL AND SMALL (10
PRIME NEGATIVE6 CM) FE SUB3 O SUB4 PARTICLES WITH A HIGH (POSITIVE 28
MV) ZETA POTENTIAL.   ADSORPTION OF SMALL PARTICLES BY LARGE ONES IS
OBSERVED AS WELL AS INCREASE IN STABILITY AND ZETA POTENTIAL OF LARGE
PARTICLES.   THE RELATIONSHIP BETWEEN THE AMOUNT OF ADSORBED PARTICLES
AND THE ZETA POTENTIAL OF LARGE PARTICLES POINTS TO A DISCRETE LOCATION
OF THE CHARGE ON THE SURFACE OF LARGE PARTICLES.

UNCLASSIFIED

1/2   015   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--USE OF MAGNETIC MEASUREMENTS IN A STUDY OF PHYSICO CHEMICAL AND
TECHNOLOGICAL PROPERTIES OF DISPERSED SYSTEMS -U-

AUTHOR--BIBIK, YE.YE.

B

COUNTRY OF INFO--USSR

SOURCE--Zh. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 587-92

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FERROMAGNET, PARTICLE DISTRIBUTION, MAGNETIC SUSCEPTIBILITY,
PARTICLE INTERACTION, IRON OXIDE, MAGNEITC STRUCTURE, CHEMICAL
SUSPENSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1195   STEP NO--UR/0080/70/043/003/0587/0592

CIRC ACCESSICN NO--AP0124849
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0124849

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO ESTABLISH THE RELATION BETWEEN
THE FORCES ACTING BETWEEN PARTICLES OF A DISPERSED FERROMAGNET AND ITS
MAGNETIC PROPERTIES, THE EFFECTIVE FIELD METHOD WAS USED. AN EXPRESSION
FOR THE MAGNETIC SUSCEPTIBILITY, CHI, OF A DISPERSED SYSTEM IN A
MAGNETIC FIELD WAS OBTAINED, TAKING INTO ACCOUNT THE FORMATION OF
AGGREGATES IN AN EXTERNAL FIELD. THIS CONNECTS CHI WITH THE FORCES
ACTING BETWEEN PARTICLES, DELTA CHI, THE CHANGE OF CHI WITH AND WITHOUT
THE FORMATION OF AGGREGATES, IS THUS OBTAINED. THE ESTD. CHANGE IN
MAGNETIZATION IS CONFIRMED EXPTL. BY USING Fe_3O_4 SUSPENSIONS IN
DIFFERENT CONCNS. OF NACL. FOR SMALL CONCNS. OF PARTICLES, EXPRESSIONS
FOR R, THE REPULSIVE FORCE, AND R, THE DISTANCE BETWEEN PARTICLES, ARE
OBTAINED. WITH CLUMPS, BY USING THE EXPTL. VALUES OF THE CHI 0 PRIME
THE INITIAL PERMEABILITY, AND DELTA CHI 0 PRIME, L, THE VALUE OF THE
LANGEVIN FUNCTION, CAN BE OBTAINED. FROM L, THE LOCAL FIELD, R, AND R
ARE ESTD. EXPRESSIONS FOR CHI 0 PRIME FOR SINGLE DOMAIN PARTICLE
SUSPENSIONS AND FOR STRONG INTERACTION OF PARTICLES IN CLUMPS OF
DISPERSED FERROMAGNETS ARE OBTAINED. IN THE LATTER CASE, A DECREASE OF
VOL. CONCN. LEADS TO THE APPEARANCE OF VACANCIES IN THE QUASI CRYST.
LATTICE AND THEN TO ITS BREAKING INTO FRAGMENTS. THIS LEADS TO A
DECREASE OF THE COEFF. OF INCREASE OF LOCAL FIELD DUE TO NEAREST
NEIGHBORS.   FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA,
LENINGRAD, USSR.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--30OCT70

TITLE--DEPENDENCE OF THE EXCRETION OF DEOXYURIDINE, THYMIDINE, AND
  BETA-AMINOISOBUTYRIC ACID BY RATS ON THE DOSE OF IRRADIATION AND TIME

AUTHOR-(03)-MAZURIK, V.K., BRYKSINA, L.YE., BIBIKHIM, L.N.

COUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA; 10: 43-8 (JAN-FEB 1970).

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IONIZING RADIATION BIOLOGIC EFFECT, RADIATION DOSAGE, DNA,
  METABOLISM, NUCLEOSIDE, EXCRETION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1844   STEP NO--UR/0205/70/010/000/0043/0048

CIRC ACCESSION NO--AP0127254
                    UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE—30OCT70

CIRC ACCESSION NO--AP0127254

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE FIRST DAY AFTER IRRADIATION, THE EXCRETION OF DEOXYURIDINE AND THYMIDINE BY RATS WAS A LINEAR FUNCTION OF THE DOSE IN THE RANGE FROM 50 TO 500 TO 700 R AND WAS EQUALLY GREAT AT HIGHER LEVELS OF RADIATION; THE EXCRETION OF BETA-AMINOISOBUTYRIC ACID DID NOT DEPEND ON THE DOSE. THE AMOUNT OF POST RADIATION HYPEREXCRETION OF THYMIDINE WAS INVERSELY PROPORTIONAL TO THE LOGARITHM OF THE WEIGHT OF THE ANIMALS AND WAS CLOSELY CORRELATED WITH THE POSTRADIATION DECREASE IN THE DNA CONTENT IN THE SPLEEN AND THYMUS. A MATHEMATICAL DESCRIPTION OF THE DEPENDENCE OF THE EXCRETION OF THYMIDINE ON THE WEIGHT OF THE RATS AND DOSE OF WHOLE BODY IRRADIATION IS GIVEN. TWO (DOSE 50 TO 300 R) OR THREE (DOSE MORE THAN 400 R) WAVES OF HYPEREXCRETION OF DEOXYNUCLEOSIDES WERE DETECTED OVER A PERIOD OF 30 DAYS AFTER IRRADIATION. (TR-AUTH)   INST. OF MEDICAL RADIOLOGY, OBNINSK, USSR.

UNCLASSIFIED

USSR

PEYSAKHIS, L. A., STOGOV, I. I., STEPANOV, V. M., and BIBIKOV, D. I., Central Asian Scientific Research Antiplague Institute, Alma Ata

"Experimental Study of Plague in the Wheatear (Oenanthe isabellina) in Connection With Its Possible Role in Natural Foci of the Disease"

Abstract: Contrary to the widely held view that birds are not susceptible to plague, the wheatear (Oenanthe isabellina) proved to be highly sensitive to the agent of the disease. Of 46 birds inoculated with doses of 10^2 to 10^7 microbial cells, 33 died 2 to 19 days later with the septic form of plague. Xenopsylla cheopis and Ceratophyllus laeviceps fleas allowed to feed on the sick birds before they died became infected. When placed on healthy wheatears and several rodent species, the fleas transmitted the disease to these animals. Since the wheatear lives in close contact with rodent plague vectors, it probably participates in circulation of the agent and its dissemination throughout the natural foci. The fact that many of the experimentally infected birds did not show symptoms of plague for more than 6 days indicates the possibility that during their seasonal migrations sick birds may carry the agent long distances during the incubation period of the disease.
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1/2   022   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--THE ROLE OF INHIBITION IN PATTERING OF SINGLE NEURON RESPONSES IN
  THE AUDITORY SYSTEM OF THE FROG -U-
AUTHOR--BIBIKOV, N.G.

COUNTRY OF INFO--USSR

SOURCE--NEYROFIZIOLOGIYA, 1970, VOL 2, NR 3, PP 236-244

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INHIBITION, NEURON, FROG, AUDITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1492   STEP NO--UR/0660/70/002/003/0236/0244

CIRC ACCESSION NO--AP0123395
                      UNCLASSIFIED

2/2   022   UNCLASSIFIED   PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0123395
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESPONSES OF SINGLE NEURONS OF
 THE AUDITORY REGION IN THE FROG MESENCEPHALON TO TONAL STIMULI WAS
 STUDIED. IT WAS FOUND THAT SOME NEURONS WHICH RESPOND BY SUSTAINED
 DISCHARGE TO THE TONE OF A CHARACTERISTIC FREQUENCY DISPLAY ON RESPONSES
 TO TONES OF HIGHER FREQUENCIES. RESPONSES TO THE TONE OF A
 CHARACTERISTIC FREQUENCY CAN BE INHIBITED BY THE TONES WHICH GIVE RISE
 TO THE ON RESPONSE.   FACILITY: INSTITUTE OF ACOUSTICS, MOSCOW.

UNCLASSIFIED

USSR   UDC   620.197.5:669.717

LYUBLINSKIY, YE. YA. and BIBIKOV, N. N., Central Scientific Research
Institute of Shipbuilding Technology

"Cathodic Processes and Parameters of Protection of Aluminum and Its Alloys
in Sea Water"

Abstract: Use was made of the analysis of potentiokinetic curves to explain
the mechanism of cathodic processes and determine the minimum required and
maximum permissible parameters of electrochemical protection of aluminum
and its alloys in sea water of different salinities. The experimental
materials were A99 and AMg-61 alloys. The potentiokinetic curves were
plotted of the specimens in sea water ranging in salinity from 0.3 to 35% at
18-20°C. The experimental results show that aluminum and its alloys need
no cathodic protection at salinities up to 3%. At salinities ranging from
3 to 35% corrosion is inhibited at potentials from -0.57 to -0.78 v.
"Overprotection" sets in at potentials of -1.07 to -0.96 v. The minimal
protection shifts of the potential from its stationary value with a change
in salinity from 0.3 to 35% increases from 20 to 150 mv. It should be borne

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- USSR

in mind that with prolonged cathodic polarization the overprotection phenomenon may set in at a more positive potential (by about 50 mv) due to an increase in the pH of the layer near the electrode with time. (3 illustr., 7 bibliographic references)

USSR   UDC: 620.197.5

LYUBLINSKIY, YE. YA., BIBIKOV, N. N., TAYTS, A. Yu., and SUBBOTINA, M. S.,
Central Scientific-Research Institute of Shipbuilding Technology

"Selection of Cast Magnesium Protector Alloys"

Moscow, Zashchita Metallov, "Nauka", Vol 7, No 3, 1971, pp 322-326

Abstract: The authors determine the optimal composition of a magnesium pro-
tector alloy. The tests were conducted in calm, artificial sea water of
average ocean composition at 18-20 degrees. A table is given which shows that
commercially pure alloys have similar electrochemical characteristics. Of the
high-purity alloys, the Ml4vch alloy appears to be the qualitatively best
protector material. The following are its composition and electrochemical
characteristics obtained at a current density of 5 a/m^2 and a test duration of
480 hr: alloying elements by percent, 519 Al, 2.4 Zn, 0.40 Mn, and 0.0 Ce;
impurities by percent, 0.0035 Fe, 0.0005 Cu, and 0.0002 Ni; potential during
polarization in mv, -1205; and current efficiency by percent, 60.0. The
studies show Ml4vch to be the best protector material if it does not contain
more than 0.001 Ni, 0.0045 Fe, and 0.005 Cu. It dissolves within the 3-10 a/m^2
current density interval with a current efficiency of 57.5-62.0% at a potential
of -1225-1205 mv. Original article: one table, two formulas, one figure, and
seven bibliographic entries.
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Corrosion

USSR   UDC 620.197.5:629.123

BIBIKOV, N. N., LYUBLINSKIY, YE. YA., and POVAROVA, L. V.

"Electrochemical Protection of Ships From Corrosion"

Electrokhimicheskaya Zashchita Morskikh Sudov ot Korrozii, "Sudostroyeniye"
Publishing House, Leningrad, 1971, 261 pp

Translation of Authors' Foreward: Corrosion protection of the underwater
structures of ships is an important consideration in shipbuilding. The pro-
blem has grown more urgent in recent years because of the use of alloy
steels and aluminum alloys in hulls, the employment of structures made of
different kinds of metals and alloys, the increased speed of ships, and wider
sailing ranges, including voyages to tropical and northern latitudes. The
increased demands for the protection of ships against corrosion have led to
the development and application of new and more effective paints and varnishes.
However, in most cases the use of paints and varnishes alone cannot solve all
the problems connected with protecting ships against corrosion that arise
in shipbuilding. The combination of paints and varnishes with electrochemical
protection is the most promising method of controlling corrosion.

        The technical and economic benefits from electrochemical protection
are not limited to the elimination of corrosion and the reduction of ship
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USSR

BIBIKOV, N. N., et al., Elektrokhimicheskaya Zashchita Morskikh Sudov ot
Korrozii, "Sudostroyeniye" Publishing House, Leningrad, 1971, 261 pp

repair costs. Electrochemical protection combined with the use of paints and
varnishes opens up the possibility of increasing the profitability of ships.
It increases freight transport volume by reducing the number and duration of
dry-dockings. It reduces the thickness of the hull planking, Electrochemical
protection simplifies the schedules for painting the underwater part of the
hull by reducing the number of layers of anticorrosion coatings and, in some
types of ships, by making it unnecessary to paint the underwater part of the
hull. Electrochemical protection makes it possible to retain the rated speed
of ships throughout the period between dockings while lowering fuel costs by
making the underwater part of the hull smoother.

     Electrochemical protection of ships is being used more and more. This
has made it necessary to sum up the results of research on the subject and
the experience gained in the design, installation, and operation of systems
of electrochemical protection on naval vessesl.

     The book discusses the problems involved in electrochemical protection
of ships. It examines the underlying theory and deals with the physicochemical
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USSR

BIBIKOV, N. N., et al., Eleltrokhimicheskaya Zashchita Morskikh Sudov ot Korrozii, "Sudostroyeniye" Publishing House, Leningrad, 1971, 261 pp

properties of sea and river water, the physicochemical and mechanical properties of protective anodic, and other materials for components of the protection system and substantiates their choice. The book describes the electrochemical protection systems now in use and considers a number of matteris that must be kept in mind if there is to be efficient development and improvement of protection systems.

        This book is the product of long-term research by the authors carried out jointly with L. I. Stoklitskiy, M. I. Dzyubenko, Ya. A. Tsenter, A. Yu. Tayts, F. N. Ginsburg, V. K. Fedorov, A. N. Antonov, Yu. L. Kuz'min, N. D. Sashchenko, T. M. Karatayeva, N. Z. Proskuryakova, M. S. Subbotina, D. A. Noritsyna, L. I. Katkov, R. S. Pomiranskiy, K. M. Sazonova, V. A. Nabokova, V. M. Pender, L. I. Ivanova, and others.

        The authors thank A. L. Rotinyan, M. A. Dasoyan, and Yu. Ye. Zobachev for valuable advice.

        Please send comments and suggestions to: Leningrad, D-65, 8 Gogol' Street, "Sudostroyeniye" Publishing House.
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USSR

BIBIKOV, N. N., et al., Elektrokhimicheskaya Zashchita Morskikh Sudov ot Korrozii, "Sudostroyeniye" Publishing House, Leningrad, 1971, 261 pp

Translation of Table of Contents:

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USSR

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BIBIKOV, N. N., et al., Elektrokhimicheskaya Zashchita Morskikh Sudov ot Korrozii, "Sudostroyeniye" Publishing House, Leningrad, 1971, 261 pp

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USSR

UDO 621.373.039.7

KURBATOV, L.N., KOZINA, G.S., FAVORIN, V.N., RATALINA, M.A., BIBIKOV, YE.V.,
VLASOV, A.N., DEMIDOV, S.S.

"Some Characteristics Of Small-Sized Pulsed Laser With Electron Excitation"

Abstract: The principal characteristics are presented of a small-sized electron-beam pulsed laser with a high radiated power. Feasible types of laser targets are discussed. The construction is shown of a complex multielement target with passive regions. Graphs are shown of 1) The dependence of the radiated power of a single-layer target on the power of the exciting electron beam; 2) The dependence of the radiated power of a multilayer target ("cake") on the power of the electron beam; and 3) The dependence of the radiated power on the pulse recurrence frequency of the exciting electrons for a "cake" target. A graph is also shown of the angular distribution of the emission of single-layer and multilayer targets in a vertical plane coincident from the direction of the electrons and in a Horizontal plane coincident from the bombarded surface of the crystal. The authors thank N.A.IoPia, Ye.D. Naumenko, A.I.Soloveychik, I.Yu. Gol'dshteyn, and S.S. Shakhidzhanov for valuable consultations and aid in the work. 8 fig. 9 ref. Received by editors, 30 May 1971.

1/1

USSR   UDC 517.925.32

BIBIKOV, YU. N., Leningrad State University imeni A. A. Zhdanov

"The Existence of Conventional Periodic Solutions of Systems of Differential Equations"

Abstract: The author examines an autonomous real analytical system of differential equations with the state of equilibrium at the origin. He assumes that among the roots of the characteristic equation of the system of linear approximation there are 2n rationally independent, purely imaginary roots and the real parts of the others are non-zero. He proves that under certain conditions the system examined has in every neighborhood of the equilibrium state conventional periodic solutions with n and n-1 frequencies. This result supplements the familiar Lyapunov theorem according to which single-parameter families of periodic solutions exist for the system examined under the assumptions made in the article. The author formulates the theorem and offers proof through examples. The article contains 9 bibliographic entries.

1/1

Abstract: In 1961 V. I. ARNOL'D proved that if m = 0 and the system of differential equations

$$\frac{dx}{dt} = X(x,\ t)$$

is canonical, undisturbed motion is stable according to Lyapunov for most small disturbances and unconditionally stable, given n = 1. An analogous result was later obtained by the author for

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USSR

systems of second-order equations invariant with respect to replacement of
t by — t (so-called bilateral systems). The present article generalizes
these results. The stability of periodic motions in the critical case of
n pairs of purely imaginary characteristic indices is considered. It is
assumed that there is "formal stability." It is proved that in the general
transcendental case invariant toroidal surfaces exist in any neighborhood
of the coordinate origin and for most initial data from a sufficiently
small neighborhood of the coordinate origin solutions to system (1.1) either
belong to these surfaces or tend to them as $t \to + \infty$. Unconditional
stability is proved for n=1.

2/2

USSR   UDC: none

BIBIKOV, YU. N, and LESTEV, A. M. (Leningrad)

Abstract: This article is a study of a system of third-order differential
equations describing the motion of a single-axis gyroscopic stabilizer with a
floating integrating gyroscope. Control of the motor for the stabilizer is the
responsibility of a switching device with a certain insensitivity zone. It is
shown that for a small insensitivity zone, the system has a closed trajectory
corresponding to self-oscillations of the gyroscope stabilizer. The phase space
region in which the closed trajector is contained is indicated. The author
asserts that in the thekry of gyroscopic devices in which self-oscillatory modes
are used, special attention must be given to clarification of the conditions
and to proof of the existence of such closed trajectories.

1/1

TITLE--BIOLOGICAL ACTION AND DISTRIBUTION OF TRITIUM OXIDE IN A DOG -U-

AUTHOR-(04)-BIBIKOVA, A.F., ZHURAVLEV, V.F., IZMAILOVA, G.M., KALYAZINA, N.S.

COUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA 1970, 10(2), 310

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DOG, TRITIUM OXIDE, RADIATION SICKNESS, HEMORRHAGE, CENTRAL NERVOUS SYSTEM, CEREBRUM, BRAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRITIUM OXIDE (T SUB2 O)
INTRODUCED I.P. IN 0.15 AND 0.3 MCI-G DOSES TO DOGS CAUSED ACUTE
RADIATION SICKNESS WITH MARKED HEMORRHAGIC SYNDROME AND IRRITATION OF
THE CENTRAL NERVOUS SYTEM. HISTOL. EXAMN. OF THE CEREBRUM REVEALED
DIFFUSE TOXIC DAMAGE OF NEURONS AND OF NEUROGLIA. THESE EFFECTS ARE
DIFFERENT FROM THOSE CAUSED BY EQUAL DOSES OF IONIZING RADIATION FROM AN
EXTERNAL SOURCE. DISTRIBUTION OF T SEEMED TO BE UNIFORM THROUGHOUT ALL
ORGANS INCLUDING THE BRAIN TISSUE. THIS RENDERS POSSIBLE THE DETN. OF
IRRADN. DOSES AND OF THE KINETICS OF T SUB2 O ELIMINATION BASED ON
CHANGES IN THE BLOOD LEVEL.   FACILITY: INST. BIOFIZ., MOSCOW,
USSR.

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Vector Studies

UDC 576.851.49+576.851.45/.095.38

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BIBIKOVA, V. A., KHRUSTSELEVSKAYA, N. M., and ALEKSEYEV, A. N., Central-Asian Scientific Research Antiplague Institute, Alma-Ata, and Order of the Labor Red Banner Institute of Medical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy, Ministry of Health USSR, Moscow

"Infection of a Transmitter With Several Pathogens. The Fate of Salmonella and Pasteurella pestis in Fleas"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 42, No 1, Jan/Feb 73, pp 69-73

Abstract: Salmonellae are known to be present in fleas at foci of plague. In experiments carried out on fleas of gerbils and rats, the effects of salmonellae and P. pestis on each other upon mixed infection with them of the fleas were studied. Salmonella typhimurium and S. enteritidis were used in the experiments. On simultaneous infection of the fleas with salmonellae and P. pestis, the rate of survival of the salmonellae during the first hours was higher than that of P. pestis. Subsequently the salmonellae perished at a higher rate than P. pestis and towards the 35th day only P. pestis remained. Initial infection of the fleas with P. pestis followed by infection with salmonellae increased the rate at which the latter perished. This was due to an increase in the unspecific resistance of the organism manifested in a bactericidal effect. The unspecific
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resistance of P. pestis was also increased by prior infection with salmonellae,
but the effect was much less pronounced. Presence or absence of salmonellae did
not affect the rate at which P. pestis finally multiplied. Simultaneous infec-
tion with salmonellae and P. pestis did not interfere with the formation of a
proventriculus block and consequently with the mechanism by which fleas transmit
plague. At the same time, conditions favoring transmission of salmonellae to
warm-blooded animals were created. This was demonstrated in experiments on mice,
which were infected with both salmonellosis and plague upon being bitten by
fleas that carried the causative factors of both diseases. As had already been
observed by other authors, salmonellae had a pathogenic effect on the fleas.

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BIBIKOVA, V. A., Doctor of Biological Sciences, Alma Ata

"Fleas, Transmitters of Mixed Infections"

Moscow, Priroda, No 10, 1971, p 101

Translation: It is common knowledge that under natural conditions plague is
transmitted by fleas. On reaching the digestive tract of the vectors, the
plague microbe reproduces and blocks the stomach. This results in infection
the next time the fleas suck blood. This mechanism of transmission of infec-
tion (or the "block" phenomenon) is peculiar to plague alone.

The Central Asian Scientific Research Antiplague Institute (Alma-Ata) performed
interesting experiments involving infection of the rat fleas Xenopsylla
cheopsis with mixed populations of plague and pseudotuberculosis microbes.*
It turned out that these microorganisms behave differently in the digestive
tract of insects. Unlike P. pestis, the agents of pseudotuberculosis died,
but before the "plague" block was formed, some of the pseudotuberculosis

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*Problemy osobo opasnykh infektsiy (Problems of Especially Dangerous In-
fections), Saratov, 1971; Zhurnal mikrobiol., epidemiol. i immunolog.
(Journal of Microbiology, Epidemiology and Immunology), 1967, No 5, pp 138-139
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BIBIKOVA, V. A., Priroda, No 10, 1971, p 101

cells remained so that the specific plague mechanism was used to transmit the
other infection.

Similar results were obtained in experiments with plague and salmonellosis,
plague and erysipelas.[*] Both microbes got along peacefully with one another
and the fleas infected laboratory animals with two diseases at the same time.

The results of these experiments are particularly important for the study of
natural foci of plague where there are other pathogens. In places where animals
suffer from bacteremia, however brief, and parasitic contacts between warm-
blooded animals are mediated by fleas, the above-described phenomenon becomes
epizootiologically significant. It warrants the attention of investigators.

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[*]Materialy VII nauchnoy konferentsii Sredneaziatskogo protivochumnogo in-
stituta (Proceedings of the 7th Scientific Conference of the Central Asian
Scientific Research Antiplague Institute), Alma-Ata, 1971.
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Vector Studies

ALEKSEYEV, A. N., BIBIKOVA, V. A., TATARINOVA, S. G., and KHRUSTSELEVSKAYA, N. M., All Union Scientific Research Institute of Disinfection and Sterilization, Ministry of Health USSR, and Central Asian Scientific Research Antiplague Institute

UDC 576.851.45.095.38:576.895.775].095.18:615.285.7

"Effect of the Systemic Poison Fluoroacetamide on the Viability of Infected Fleas and on the Development of the Plague Pathogen in Them"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 5, 1971, pp 571-577

Abstract: Administration of sublethal doses of the systemic organofluorine insecticide fluoroacetamide (a poison with intestinal action against rodent ectoparasites) to the great gerbil flea Xenopsylla gerbilli minax and the rat flea X. cheopis infected with a highly virulent strain of Pasteurella pestis quickly killed the fleas or resulted in elimination of the micro-organism from the insects. Fluoroacetamide suppressed the formation of a proventriculus block in the fleas. The mechanism of action of the poison lies in its inhibiting vital functions of both the micro- and macroorganism. By inhibiting the reproduction of the pathogen in the flea intestine, fluoroacetamide is an antagonist of plague bacteria. On the other hand, by

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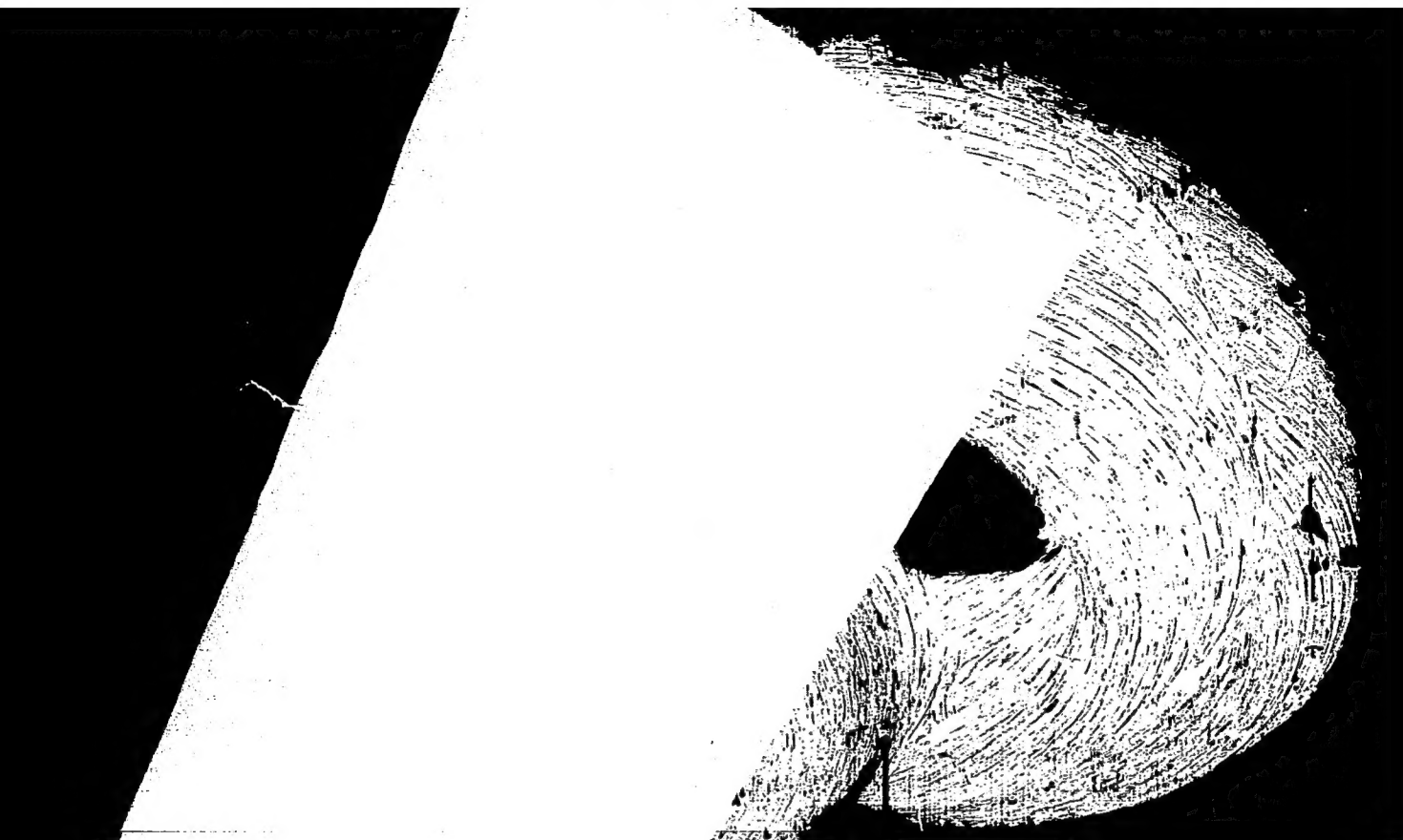
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UDC 621.359.7:661.528(088.8)

BIBIKOVA, V. I., MARUHOVA, K. V., and STEPANOVA, M. A.

"Process for the Preparation of Ammonia Perrhenates"

Translation: Ammonium perrhenates were prepared by the electrodialysis of aqueous solutions of rhenium, for example potassium perrhenate. To strengthen and simplify the process, and also to increase the purity of the final product the electrolysis was performed using an ion exchange membrane at a current density of ≥ 4 ma/cm^2 at a temperature of 50-70°C. For example, an aqueous solution of potassium perrhenate, prepared from the dry salt was electrolyzed in an electrolyzer using ion exchange membranes at a temperature of 62°C and a membrane surface current of 6 ma/cm^2 (space surface current was 2.7 a/ℓ; the anodic chamber was filled with a 1 M solution of NH_4OH) for 5 hours. Upon cooling, crystals of the final products precipitated from the onolite obtained above a yield of 172 g. of the product, containing 69.42% rhenium, was recovered. This represented a recovery of 94% of the theoretical yield.

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